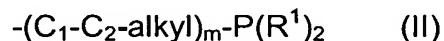


## Claims:

1. A process for generating  $^1\text{O}_2$ , which comprises treating a ferrocene of the formula



in which Fc is a ferrocene optionally substituted by dimethylaminoethyl,  $\text{C}_1$ - $\text{C}_{12}$ -alkyl, aryl or carboxyalkyl, n may be 1 or 2 and X is a radical of the formula



where m may be 0 or 1 and  $\text{R}^1$  is phenyl, cyclohexyl, tert-butyl, ethyl, isopropyl, methyl, methoxy, ethoxy, phenoxy or butoxy,

in an organic solvent at a temperature of from  $-80^\circ\text{C}$  to  $+20^\circ\text{C}$  with 1 to 4 mol of ozone per mole of ferrocene compound, as a result of which  $^1\text{O}_2$  forms.

2. The process as claimed in claim 1, wherein the ferrocene compound used is 1-(diphenylphosphino)ferrocene, 1,1'-bis(diphenylphosphino)ferrocene, (S,R)-1-(1-dimethylaminoethyl)-1',2-bis(diphenylphosphino)ferrocene, (R,R)-1-(1-dimethylaminoethyl)-1',2-bis(diphenylphosphino)ferrocene, (S,S)-1-(dicyclohexylphosphino)-2-[1-(diphenylphosphino)ethyl]ferrocene, (S,S)-1-(dicyclohexylphosphino)-2-[1-(dicyclohexylphosphino)ethyl]ferrocene, (R,R)-1-(dicyclohexylphosphino)-2-[1-(dicyclohexylphosphino)ethyl]ferrocene, (R,R)-1-(dicyclohexylphosphino)-2-[1-(diphenylphosphino)ethyl]ferrocene, (R,R)-1-[1-di-tert-butylphosphino)ethyl]-2-(diphenylphosphino)ferrocene or (R,R)-1-[1-(dicyclohexylphosphino)ethyl]-2-(diphenylphosphino)ferrocene.
3. The process as claimed in claim 1, wherein the organic solvent used is ethyl acetate, butyl acetate, methanol, ethanol, dichloromethane or acetic acid.

4. The process as claimed in claim 1, wherein the reaction temperature is -50 to -5°C.
5. The process as claimed in claim 1, wherein one to two equivalents of ozone are used.
6. The use of  $^1\text{O}_2$  generated as in claim 1 for the oxidation of organic substrates which react with  $^1\text{O}_2$ .
7. The use as claimed in claim 6, wherein a solution of an organic substrate which reacts with  $^1\text{O}_2$  is metered in during the reaction of the ferrocene compound with ozone.
8. The use as claimed in claim 6, wherein a solution of an organic substrate which reacts with  $^1\text{O}_2$  is metered in after the reaction of the ferrocene compound with ozone, following removal of any excess ozone.
9. The use as claimed in claim 7 or 8, wherein the solvent used for the substrate is ethyl acetate, butyl acetate, methanol, ethanol, dichloromethane or acetic acid.